Step 3: Take care of the individual groups of users that have specialized regional or local service requirements.

4. **Support of both 800 MHz and 1.8 GHz**

Existing AMPS cellular networks presently under transition from analogue to digital (e.g. IS 54) are both from the radio and the terminal aspects very different from the proposed DCS 1900 technology. A dual mode radio system does not look technically and economically feasible.

Need Service Architecture

A dual mode network part, however, is possible. A Mobile Switching Center in a digital AMPS network which offers the A-interface to the Base Station System could be upgraded to also support a DCS 1900 Base Station System. Synergies in service offering and subscriber administration should be achieved.

This type of MSC is presently available from Alcatel for the GMH 2000 Digital AMPS Systems of Hughes Network Systems.

5. **New features and services**

The DCS 1900 standard already today offers a wide range of

- teleservices
- bearer services
- supplementary services

which most suppliers have already implementated. Future evolution in service offerings (e.g. location dependant services) is under planning.

6. **Dual mode terminals**

Dual mode terminals are commercially justified as long as AMPS Networks have a different coverage than PCS Networks. So the coverage strategy of the future PCS operators determines the development and the viability of dual mode terminals.

7. **Commercial availablity**

The standard European DCS 1800 system is already commercially available. The availibility of the DCS 1900 system depends on the level of modification to be implemented and will be 6-12 months after standard finalization.

EXHIBIT 8

AFFIDAVIT OF JOHN A. MARINHO

John A. Marinho, being duly sworn, deposes and says:

1. I am currently chairman of the TR 45.2 Subcommittee of the Telecommunications Industry Association (TIA). TIA was formed in April 1988, by a merger of the United States Telecommunications Suppliers Association and the Information and Technologies Group of the Electronic Industries Association. It is a full service trade organization that represents nearly 600 companies in the telecommunications industry. Among its many other functions, TIA is actively involved in setting standards for a wide variety of telecommunications products. In addition, through its association with other domestic and international standards-setting organizations, TIA plays an important role in the international standards-setting process.

2. TIA has a number of technical committees devoted to standards issues. These committees deal with products in four general areas: user premises equipment, network equipment, mobile communications equipment, and fiber optic equipment. In each of these four areas, there are subcommittees responsible for specific standards setting activities. The TR 45.2 Subcommittee deals with cellular radio system operations. As Chairman of the TR 45.2 Subcommittee, I am responsible for conducting the affairs of the Subcommittee, as they relate to standards setting, in accordance with the rules and guidelines of the TIA.

3. In addition to my chairmanship of the TR 45.2 Subcommittee, I am the Supervisor of the Cellular Network Planning and Standards Group within the Cellular Systems Division at AT&T Bell Laboratories in Whippany, New Jersey. I have responsibilities for Systems Engineering regarding AT&T's present and future wireless telecommunications systems. In this capacity, I arrange for AT&T representation at meetings of TIA/EIA TR 45 Committees, T1 Committees, CCIR and CCITT. I have worked at AT&T since 1985. I received my B.S. degree in Electrical Engineering from the New Jersey Institute of Technology, in 1980, and a Masters degree in Business Administration from Rutgers University, in 1985.

4. The general purpose of this affidavit is to describe the standards-setting process and to explain how IS-41 became the accepted industry standard for intersystem handoff and automatic call delivery. I will also discuss the technical issues at this time associated with the use of a customer's presubscribed interexchange carrier (PIC) either to effectuate intersystem handoff or to exchange the administrative information necessary for automatic call delivery In discussing these matters, I will report the consensus of the members of the Subcommittee, as I understand it, and not necessarily my personal views or those of my employer.

The Standards-Setting Process

5. The standards-setting committees of TIA, including the TR 45.2 Subcommittee, are open to attendance by representatives of companies in all segments of the cellular industry -- manufacturers. cellular license holders (both wireline and non-wireline), long

distance carriers, and related hardware and software concerns. Anyone with an interest can participate in the standards-setting process.

6. The TR 45.2 Subcommittee operates under guidelines of the American National Standards Institute (ANSI)[1] to ensure that standards are promulgated in accordance with a due and fair process. The process works on the basis of consensus, and the standards adopted are wholly voluntary. As explained in section 6.2 of the TIA Engineering Manual, "[t]echnical standardization work of the TIA consists of discussion in an open forum by technical representatives from a wide spectrum of industry, leading to a consensus on electrical, mechanical, environmental, quality, reliability and other properties of telecommunications components, equipment and systems."

7. There are approximately 50 organizations represented on the TR 45.2 Subcommittee, including AT&T, GTE Mobilnet, Ericsson, McCaw Cellular, MCI, Motorola, and SNET Cellular. Presently seven of these members are from mobile affiliates of the Bell companies. All the members of the Subcommittee have an equal vote.

IS-41

8. Cellular service in any given area is provided by a Mobile Telecommunications Switching Office (MTSO) linked to a number of cell sites. Service within the territory served by any given MTSO is "seamless." That is, calls are handed off from one cell site to the next as a mobile customer is in transit. Calls are initiated from and delivered to whatever cell site is providing the strongest radio signal to the mobile unit at the time call setup is required. Wherever a customer may be within the MTSO's service area, the customer should receive the same level of service.

9. The major engineering challenge facing the cellular industry in recent years has been to link disparate MTSOs in much the same way as cells within a single MTSO's territory are linked. The goal is to provide seamless nationwide service so that a mobile customer can receive the same service in a foreign system as the customer enjoys in the customer's home system. If a cellular customer can make calls while in a foreign system ("roamer calls"), receive calls wherever the customer may be physically located ("call delivery"), and keep calls in progress from being disconnected when the customer moves from one system to another ("intersystem handoff"), then matters of franchise ownership become irrelevant to end users.

10. Until recently the incompatibility of different manufacturers' switching equipment presented a major obstacle to both call delivery and intersystem handoff. For example, a switch by one manufacturer could not handoff a call to one manufactured by another.

1. ANSI is the coordinator of the private-sector administered voluntary standards system in the United States, with a membership of more than 1,200 companies, 250 professional technical, trade, labor, and consumer organizations, and 20 government agencies. ANSI is also the official U.S. representative to major non-treaty international standardizing bodies, such as the International Organization for Standardization and the International Electrotechnical Commission.

For that reason, many carriers relied on a single manufacturer's infrastructure equipment. This allowed for intersystem coordination within a single operator's cluster of MTSOs. But it did not allow for intersystem coordination between operators using different infrastructure equipment.

11. The TR 45.2 subcommittee recently settled on a uniform technical standard to support intersystem handoff and call delivery. The new standard, known as IS-41, was first promulgated in October 1987 and most recently revised in January 1990. It was adopted unanimously by all the members of the TR 45.2 Subcommittee who voted. IS-41 was six years in the making. It is the only existing TIA standard for intersystem handoff and automatic call delivery, and it may prove to be the only basis for intersystem operations in the United States for the foreseeable future.

12. Switches from different manufacturers conforming to IS-41 will be able to communicate with one another and, thus, disparate systems can be linked together in such a way that a customer in a foreign system can enjoy the same service that the customer would in the customer's home system. Calls can be delivered and handed-off from one MTSO to another regardless of the manufacturers of the infrastructure equipment involved.

Although compliance with IS-41 is not mandatory, its adoption is likely to induce manufacturers to produce equipment in compliance with its terms and, therefore, to have been an important step in the direction of seamless nationwide service. IS-41 fulfills the principal purpose of an industry standard, as articulated in section 6.2 of the TIA Engineering Manual, which is to "promot[e] interchangeability and interoperability of products falling within the scope of TIA Engineering Committees."

Intersystem Handoff

13. Believing that it would be desirable to customers, the TR 45.2 Subcommittee undertook to standardize a process which would enable calls to remain connected when customers roamed from the coverage area of one system to that of another system. For this to happen with respect to any particular call, the call must be handed-off from the MTSO initially handling the call to the MTSO serving the area into which the customer has roamed. This process is extremely difficult to engineer. Handoffs are initiated and coordinated by gauging the strength of the signal from the mobile telephone to nearby cell sites. When the MTSO serving a particular customer detects that the signal from that customer is deteriorating, it asks the cells adjacent to the serving cell to measure the signal strength of the mobile unit. If one or more of these adjacent cells is in a different MTSO, then the neighboring MTSO will also be asked to measure the strength of the signal. The neighboring MTSO will instruct its adjacent cell site(s) to tune to the channel carrying the call and take measurements of signal strength. The neighboring MTSO will then communicate those measurements back to the home MTSO.

14. Based on these measurements, the home MTSO determines which cell can best serve the customer. If the home MTSO determines that the call can best be handled by a cell site in a neighboring system (i.e., that the call should be handed-off), it asks the neighboring MTSO to assign a specific channel for the call and then -- before the quality

of the call significantly deteriorates -- the home MTSO instructs the mobile telephone to switch to the channel to which the neighboring system is now tuned. Simultaneously, the home MTSO identifies a landline trunk over which the call can be extended to the neighboring MTSO, the neighboring MTSO confirms the choice of trunk, and the call is rerouted through the neighboring MTSO to the cell site serving the customer. The call can then continue on the new channel through the cell sites of the neighboring MTSO.

15. Effective call handoff must take place quickly. When a car driving down an expressway moves from one system to another, the first system will typically have only a few seconds to handoff control to the second system; any greater delay will result in unnecessary deterioration of the signal and potentially in the call being dropped. Furthermore, the strength of the signal is affected by many factors, not just proximity.

16. Because of the speed requirements of intersystem handoff, it is not technically practical at this time to handoff calls between MTSOs using switched landline facilities. Only direct connections (dedicated trunks) between MTSOs, with no other intervening switches, are currently envisioned for this process. Indirect connections through the landline network are not. Routing the call via the customer's Presubscribed Interexchange Carrier (PIC) could take several seconds or more. In that time the signal may deteriorate so much as to cause the call to disconnect. Even if the call does not disconnect, the quality of service is likely to be poorer.

17. Setting to one side considerations of speed, routing the call through the public switched telephone network would make no sense from a purely engineering point of view. Intersystem handoff is already tremendously complex. It requires exact timing and a high degree of coordination between MTSO switches. Today, this is most effectively and efficiently accomplished using dedicated trunks.

18. Accordingly, IS-41 assumes the use of dedicated trunks between MTSOs to effectuate call handoff. IS-41 was not designed for transfer of a call through the public switched network. Although it would be technically possible to transfer calls over the customer's PIC if each interexchange carrier provided dedicated trunks between each MTSO, the potential number of trunk groups and splintering of traffic would result in a very inefficient network design. Consequently, IS-41 was not designed for use of the customer's PIC in transferring the call from one MTSO to the other.

Automatic Call Delivery

19. In the most primitive form of call delivery, the person calling the mobile telephone must know beforehand precisely where it is located. The caller dials a roamer access port (this could be a 7 or an 11-digit number), receives a second dial tone, and then dials the mobile telephone's number. The procedure is inconvenient at best, and useless for reaching people who move frequently and unpredictably. It also requires landline callers to keep handy a book with the numbers of all the various roamer access ports. "Follow me" roaming is one step better. The traveling cellular customer checks in by dialing a three-digit code upon entering a new service area. Notice of the customer's arrival is then passed back to the customer's home system, and call forwarding is handled accordingly. The system is still less than convenient; the traveler must check in, and

must also know each time a system is departed from, and another is entered. A third option is wide-area paging, whereby the home MTSO searches for the roaming customer in several MTSOs simultaneously. This has the advantage that the customer does not have to do anything in order to receive calls, but it is inefficient. With every cell site in all the associated systems paging the customer simultaneously in response to every incoming call, the cellular network may become overloaded.

20. The treatment of automatic call delivery under IS-41 was designed to overcome these limitations. Using equipment conforming to IS-41 roaming customers would be able to "register" automatically whenever a unit enters a system. If the newly entered system is not the customer's "home" system, then the "foreign" system's MTSO automatically exchanges information with the home MTSO to arrange for the delivery of calls, assuming the customer has indicated the desire to receive calls. All of this takes place without the customer having to do anything other than turn on the mobile telephone.

21. Whenever a customer's cellular telephone is turned on, it periodically scans for the strongest cell site signal. The cells continually broadcast their system identification ("SID") and the mobile telephone registers if that system's SID differs from the SID detected by the mobile unit during its last scanning cycle (i.e., when the customer moves from one MTSO to another). The mobile telephone then automatically sends to the foreign system's switch its telephone number and its electronic serial number (ESN). The foreign system thus recognizes that a roaming customer is within its boundaries and contacts the home system to request relevant information (e.g., a "profile") about the roaming customer.

22. The customer's profile can indicate, among other things, whether the customer has agreed to accept calls while roaming outside the customer's home system. It can also indicate custom calling features to which the customer has subscribed, such as call forwarding, call waiting, and three-way calling. And it can indicate the customer's PIC, assuming the customer has a PIC.

23. IS-41 contemplates that a customer's profile can be transmitted directly between MTSOs or through an intermediate network. Without this network, a cellular system would have to be directly connected to every other cellular system's switch in the United States in order to provide automatic call delivery on a nationwide basis. With such a network, the number of other MTSOs to which each system must be directly linked is substantially reduced.

24. If the roaming customer's profile indicates a desire to have calls delivered to the customer in a foreign system, the home system is provided with a "routing alias" by the foreign system. A "routing alias" may be a temporary 10-digit number assigned to the roaming customer by the foreign system to allow for the completion of a call to the roaming customer within that system. IS-41 contemplates that the routing alias may be transmitted in one of two ways. The routing alias may either be transmitted when the roaming customer registers in the foreign system or, when the foreign system is notified that a registered roaming customer has a call pending completion. The second alternative is important for a foreign system that wants to conserve the number of temporary

numbers (i.e. "routing alias") that it has available to assign to roaming customers. This could be critical in areas such as the East Coast where numerous Metropolitan Statistical Areas (MSAs) abut, thereby generating extremely high volumes of intersystem traffic and, hence, extremely high numbers of registrations, many (if not most) of which may not result in calls being placed or received.

25. The request for and transmission of the customer profile occurs automatically whether or not a roaming cellular customer places or receives a call while in the foreign system. Indeed, the cellular customer is unaware that the transmission of the customer profile from the home system to the foreign system is even occurring. The registration process takes place prior to any call being placed and is completely separate, technically, from the process of setting up circuits to deliver a call.

26. IS-41 does not mandate the type of circuit to be used to carry calls from the home MTSO to the foreign MTSO where the customer is located. Permissively then, after obtaining the routing alias from the foreign system, the home system can, via inter-carrier signaling, deliver the call and the routing alias to a customer's PIC, which then delivers the call using the routing alias to the foreign MTSO. IS-41 also makes it easier for a roaming customer to make calls in a foreign system using the PIC. With IS-41, the foreign system will learn the identity of the customer's PIC as part of the profile information.[2]

27. Since equal access obligations have not been imposed on the entire cellular industry, IS-41 was designed to support, but not to require, the use of the customer's PIC to carry calls to and from a mobile customer. However, IS-41 was not designed to enable administrative information regarding a roaming customer to be carried by that customer's PIC. The foreign system cannot send its initial query to the home system over the customer's PIC since part of the purpose of the query is to learn the identity of the PIC. Once a query is sent over a network selected by the foreign system, the response should be returned over the same network. A transaction ID is allocated by the network that transmits the query. If the answer were returned via a different network, it would not be practical to correlate the query and response transactions. Consistency in the transmission path is therefore important to the speed and efficiency of the registration process. And that consistency should be maintained for the duration of the transaction. The fast and efficient exchange of information contemplated by IS-41 simply will not occur if the home MTSO's response to the foreign network's query must be returned over a separate network provided by the customer's PIC.

2. IS-41 will also help to eliminate fraud, which has become a grave problem in the industry. Like a credit card, a cellular telephone has to be validated to prevent illicit use. This process is complicated by the widespread use of "tumbler phones," so called for their ability to tumble illicitly through the electronic serial numbers (ESNs) until they find one that allows the cellular telephone to go on the air. Previously, the foreign system had no way to collect information about the bona fides of a particular ESN and the creditworthiness of a roaming subscriber. IS-41 will provide such information as part of the customer profile.

28. Like intersystem handoff, call delivery is a very sophisticated engineering feat. Trying to route administrative information via the customer's PIC may add an extra layer of complexity that would make no sense from a purely engineering point of view. Accordingly, IS-41 was designed to have this administrative information go over a special data network connecting the various MTSOs with each other, and consequently does not provide for use of the customer's PIC in the registration process.

4/17/91

5/4/92

AFFIDAVIT OF
HENRY SCOTT FOX

Having been duly sworn. I, Henry Scott Fox, do affirm and say:

1. My name is Henry Scott Fox. I am Vice President-Engineering and Operations of BellSouth Personal Communications, Inc. ("BSPCI"). My business address is 3353 Peachtree Road, N.E., Suite 300, Atlanta, Georgia 30326.

2. I have a Bachelor of Science degree in Electrical Engineering (BSEE) which I received in 1981 from the College of Engineering, University of Florida. My area of specialization is Digital Communications.

3. I have spent the past 15 years in a broad variety of senior technical management positions focused on all engineering and operations aspects of conventional mobile telephone, paging, cellular, and Personal Communications Services (PCS). I have been responsible for directing the design, implementation, optimization, operation and evolution of some of the largest systems in the nation. During this time, I have consistently been promoted to positions of increasing responsibility. A copy of my resume is attached.

4. As Vice President-Engineering and Operations for BSPCI, I am responsible for all technical aspects related to the design, implementation, optimization and operation of BSPCI's Personal Communications Systems in the domestic United States.

Overview of BSPCI, its Network Plans and Product Strategy

5. BSPCI is a wholly owned subsidiary of BellSouth Corporation. BSPCI operations are separate and distinct from other BellSouth subsidiaries engaged in the provision of voice and data telecommunications services; in particular, BSPCI is separate from BellSouth Mobility Inc., American Cellular Corporation, BellSouth Cellular Corporation, and BellSouth Telecommunications, Inc..

6. BSPCI participated in the auctions for A- and B-block broadband PCS licenses, and has been awarded the licenses for two geographically adjacent Major Trading Areas (MTAs). MTA-006 covers most of the territory in North and South Carolina, and MTA 044 includes territory in eastern Tennessee, southeastern Kentucky and southwestern Virginia centering on Knoxville, Tennessee. Exhibit 1 includes a map depicting these MTAs. BSPCI is designing and constructing a network to provide PCS in these MTAs with commercial service to begin in mid-1996.

7. In addition, BSPCI plans to participate in the upcoming auctions for C-block licenses for certain Basic Trading Areas (BTA) licenses. If we are successful in winning licenses, network infrastructure will be built out and commercial service offered in the BTA territories as soon as practicable

8. In each of our service areas, we will be competing directly with two incumbent cellular providers immediately, and perhaps as many as four other PCS entrants over time. In

MTA 006, BSPCI will also compete with an incumbent provider of Enhanced Specialized Mobile Radio (ESMR)

Description of Technology and Network Architecture

9. BSPCI has selected PCS-1900 as the most appropriate digital wireless technology to meet our network and product requirements. PCS-1900 is based on the Global System for Mobile Communications, or GSM, standard. GSM is the most commonly deployed digital cellular technology in Europe. PCS-1900 adapts the European GSM standards to the North American network, and upbands the radio interface to operate at the frequencies allocated for PCS.

10. The PCS-1900 network architecture is a cellular design. Mobile terminals, or handsets, communicate with cell sites, or Base Transceiver Stations (BTS) over a radio interface operating in the 1900 MHz band. BTSs are connected by dedicated wireline facilities, or by private microwave radio, to Base Station Controllers (BSC). The BSCs manage traffic originating and terminating on the BTSs connected to it. Each BSC is connected by dedicated wireline facilities to a Mobile Switching Center (MSC). The MSC is a switch comparable to a cellular Mobile Telephone Switching Office (MTSO). Like an MTSO, each MSC in BSPCI's network will be separate from switches used by BSPCI's operating telephone company affiliate to route landline calls. BSPCI will interconnect its network with the landline public switched network in the same manner as do cellular service companies, ESMR providers, and other PCS operators. Exhibit 2 provides a schematic representation of a PCS-1900 network.

11. Like traditional cellular networks, PCS-1900 BTSs reuse the frequencies allocated in such a way as to avoid interference with nearby BTSs. PCS-1900 can support the handoff of calls in progress from one BTS to another at highway speeds, and requires switching capabilities similar to those utilized by cellular operators.

12. At commercial launch, the BSPCI network in our two MTAs will consist of three MSCs, approximately thirty BSCs, and over 400 BTSs.

13. PCS should be a seamless service within the licensed service area. This will require the ability to accomplish call handoffs between BTSs within each MSC service area, and between BTSs served by different MSCs within the BSPCI network.

14. Handoff procedures are quite complex. John Marino, chairman of Subcommittee TR45.2 of the Telecommunications Industry Association, commenting on the IS-41 standard for analog cellular, has described the handoff process in some detail:

> "Intersystem Handoff
>
> "13. Believing that it would be desirable to customers, the TR45.2 Subcommittee undertook to standardize a process which would enable calls to remain connected when customers roamed from the coverage area of one system to that of another system. For this to happen with respect to any particular call, the call must be handed off from the MTSO initially handling the call to the MTSO serving the area into which the customer has roamed. This process is extremely difficult to engineer. Handoffs are initiated and coordinated by gauging the strength of the signal from the mobile telephone to nearby cell sites. When the MTSO serving a particular customer detects that the signal from that customer is deteriorating, it asks the cells adjacent to the serving cell to measure the signal strength of the mobile unit. If one or more of these adjacent cells is in a different MTSO, then the neighboring MTSO will also be asked to measure the strength of the signal. The neighboring MTSO will instruct

its adjacent cell site(s) to turn to the channel carrying the call and take measurements of signal strength. The neighboring MTSO will then communicate those measurements back to the home MTSO.

"14. Based on these measurements, the home MTSO determines which cell can best serve the customer. If the home MTSO decides that the call can best be served by a cell site in a neighboring system (i.e., that the call should be handed-off), it asks the neighboring MTSO to assign a specific channel for the call and then - before the quality of the call deteriorates - the home MTSO instructs the mobile telephone to switch to the channel to which the neighboring system is now tuned. Simultaneously, the home MTSO identifies a landline trunk over which the call can be extended to the neighboring MTSO, the neighboring MTSO confirms the choice of trunk, and the call is re-routed through the neighboring MTSO to the cell site serving the customer. The call can then continue on the new channel through the cell sites of the neighboring MTSO.

"15. Effective call hand-off must take place quickly. When a car driving down an expressway moves from one system to another, the first system will typically have only a few seconds to hand off control to the second system; any greater delay will result in unnecessary deterioration of the signal and potentially in the call being dropped. Furthermore, the strength of the signal is affected by many factors, not just proximity.

"16. Because of the speed requirements of intersystem handoffs, it is not technically practical at this time to handoff calls between MTSOs using switched landline facilities. Only direct connections (dedicated trunks) between MTSOs, with no other intervening switches, are currently envisioned for this process. Routing the call via the customer's Presubscribed Interexchange Carrier (PIC) could take several seconds or more. In that time the signal may deteriorate so much as to cause the call to disconnect. Even if the call does not disconnect, the quality of service is likely to be poorer.

"17. Setting to one side considerations of speed, routing the call through the public switched telephone network would make no sense from a purely engineering point of view. Intersystem handoff is already tremendously complex. It requires exact timing and a high degree of coordination between MTSO switches. Today, this is most effectively and efficiently accomplished using dedicated trunks.

> "18. Accordingly, IS-41 assumes the use of dedicated trunks between MTSOs to effectuate call handoff. IS-41 was not designed for transfer of a call through the public switched network. Although it would be technically possible to transfer calls over the customer's PIC if each interexchange carrier provided dedicated trunks between each MTSO, the potential number of trunk groups and splintering of traffic would result in a very inefficient network design. Consequently, IS-41 was not designed for use of the customer's PIC in transferring the call from one MTSO to the other."

15. PCS-1900 handoff procedures are very similar to those described above, with some minor differences. First, if the call is to be handed off between BTSs served by the same BSC, the BSC itself controls the handoff. Otherwise, the MSC is in control.

16. Second, in traditional cellular technology, handoffs are controlled by the serving cell site. PCS-1900 utilizes mobile assisted handoffs. As the name implies, the handset has an important role in the handoff process. The PCS-1900 handset, along with the BTS, monitors transmission quality. The handset also measures the quality of up to six neighboring cells, and reports these data at least once per second. Thus, the BSC or MSC has measurements on both the uplink and downlink paths to use in setting up a handoff.

17. Finally, additional measurements are utilized. In cellular, the only measurement available is the signal strength. Because PCS-1900 is a digital technology, it can also provide measurements of the bit error rate of the digital data stream. This additional information greatly enhances the ability of the network to make efficient handoff decisions.

18. Thus, the handoff of a cellular call in progress is a very complex process requiring exact timing and coordination among multiple network elements. The advent of PCS adds

significant additional complexity simply because of the larger geographic scope of the service area involved.

Need for Waiver

19. Cellular service areas - the Metropolitan Statistical Areas (MSAs) and Rural Service Areas (RSAs) - are relatively small in comparison to PCS MTAs. It is common to find several MSAs and RSAs within a given Local Access and Transport Area (LATA). It is also common for a single MTA to cover several LATAs.

20. Exhibit 3 shows North and South Carolina with the LATA, MTA, MSA and RSA boundaries defined. Note that, of the thirty-six MSAs and RSAs, relatively few include territory in more than one LATA. On the other hand, MTA 006 encompasses some or all of eleven different LATAs. Similarly, MTA 044 includes territory in five different LATAs.

21. Because it is an RBOC-affiliated wireless network operator, BSPCI will deploy and operate a network which rigorously adheres to the interLATA transport and equal access requirements of the MFJ. The BTSs and BSCs in different LATAs will be separately controlled by their own MSCs or a dedicated portion of a shared MSC. Establishing the initial routing of calls so as to comply with the MFJ is complex and costly, but can be accomplished with existing technology. However, altering that routing to incorporate use of a presubscribed interexchange carrier (PIC) while a call is in progress is not possible with current technology.

22. Mobile customers within the BSPCI service area are likely to traverse LATA boundaries relatively frequently while they have calls in progress. Consider, for example, traffic

along the Greenville - Columbia - Charleston, and the Columbia - Charlotte - Greensboro interstate highway corridors. Each of these routes, and others which could be listed, crosses one or more LATA boundaries within the MTA. Without regulatory relief, the interLATA transport prohibition of the MFJ requires that the existing "local" calls be disconnected and re-established as interLATA calls utilizing the caller's PIC.

23. It is technically infeasible and administratively impractical to accomplish this for the following reasons:

a. Crossing a LATA boundary will, without exception, involve a handoff from one BTS to another.[1] As previously described, handoff procedures are extremely complex in any circumstance. Establishing an entirely new call path through an interexchange carrier's network within the time available to accomplish a seamless handoff is not possible.

b. Assuming the technical issues could be resolved - and I am unaware of any such solution - there is the administrative issue of which interexchange carrier should be involved. Under ordinary circumstances, the selection of interexchange carrier is determined by which party to the call created the inter LATA situation. For most call scenarios, this is clear cut; however, in the case of a mobile-to-mobile call in which each party crosses a LATA boundary while the call is in progress, it is not clear which interexchange carriers should be involved, nor how the call

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[1] MFJ constraints require that BTSs be deployed on a "LATA-pure" basis. The fact that a given BTS is associated with a specific LATA provides the intelligence the network uses to determine whether an interLATA transport situation may exist.

should be routed. As the number of wireless service users increases relative to landline users, this circumstance will move from the rare occasion to the commonplace.

24. The preceding discussion implies that the calls in question are initiated as "local" calls, and transition to interLATA calls while in progress because one or both parties moved across a LATA boundary. The reverse situation must also be considered. If a call is initiated as an interLATA call with the interLATA transport leg provided by an interexchange carrier, and one or both parties move so that they are in the same LATA, the call becomes "local" while in progress. In this case, the handoff process would include disconnecting the path through the interLATA carrier's network and establishing a new "local" call path. For the reasons discussed above, this is also technically infeasible.

25. Without relief, BSPCI customers will be disadvantaged in two ways:

a. BSPCI, as an RBOC-affiliated wireless network operator, must conform to the MFJ requirements relative to equal access and interLATA which increase the underlying costs of the service.

b. Absent a waiver, BSPCI will be forced to disconnect calls in progress when the mobile customer traverses a LATA boundary. Customers will be disadvantaged and will perceive this as inferior service.

26. For PCS customers to realize this technology's full potential, it is essential for the operators to be able to provide seamless service within the geographic scope of the MTA at a minimum. We believe the public interest is best served when customers are offered an array of choices. To compete effectively for customers against the incumbent cellular, ESMR and non-

RBOC affiliated PCS providers, BSPCI must have the capability to offer seamless service within its authorized service area. Such a seamless service is possible only if BSPCI is not required to disconnect calls in progress when a mobile party crosses a LATA boundary.

Further the Affiant sayeth naught.

Affiant

SWORN AND SUBSCRIBED
before me this 6th day of
September, 1995.

Notary Public

My Commission expires: Notary Public, Fulton County, Georgia My Commission Expires Jan. 10, 1999

HENRY SCOTT FOX

3413 Riley Drive • Plano, TX 75025
(214) 491-1224

EDUCATION

Bachelor of Science Electrical Engineering (BSEE) • 1981
College of Engineering • University of Florida
Specialization: Digital Communications

EXPERIENCE

BellSouth Personal Communications, Inc. — ATLANTA, GA

June 1995 to Present — **Vice President - Engineering and Operations**

Responsible for all technical aspects related to the design, implementation, optimization and operation of BellSouth's Personal Communications Systems in the domestic United States.

MCI Telecommunications Corporation — RICHARDSON, TX

March 1994 to May 1995 — **Acting Vice President, Wireless Communications Engineering**

Responsible for all aspects of MCI's national and international Wireless Communications Engineering.

- Business Analysis
- Technology Assessment and Planning
- Technology Development
- Lab Test and Integration
- Implementation and Deployment Planning
- Operations and Operational Support Systems
- Financial Management and Budget Administration
- Program Management

Director, Wireless Implementation

Responsible for implementation planning for MCI's Personal Communications Network. This includes project management of MCI's PCS Trials (GSM/TDMA and Qualcomm CDMA), network deployment modeling, engineering and construction standards, RF and switch facilities planning, operations planning, organizational structure development, vendor contract negotiations, financial analysis of various deployment strategies, site acquisition strategy development, materials planning, and project/budget planning.

MOBILE MEDIA RIDGEFIELD PARK, NJ

Sept. 1992 to Feb. 1994 — Director, Network

Responsible for all engineering and operational aspects for the Eastern Region of the United States for Metromedia Paging Services, a wholly owned subsidiary of Southwestern Bell Corporation. This primarily includes responsibility for all technical personnel and systems in the following states:

- New York
- New Jersey
- Pennsylvania
- Delaware
- Maryland
- Washington, DC.
- Massachusetts
- New Hampshire
- Maine
- Connecticut
- Vermont
- Virginia

Major Accomplishments:

- Consolidated the Eastern Region operations into three (3) major Hub locations
- Replaced all SBL/Glenayre Paging Switches with Motorola MPS 2000 Switches
- Developed and managed Capital and Expense Budgets for the Eastern Region
- Approved and tracked Capital Budgets nationwide
- Implemented a Network Control Center (NCC) responsible for centralized management and monitoring of all MIS and Paging Network performance nation-wide
- Designed and implemented new nationwide PCP paging/data network
- Designed and implemented a new nationwide data communications (VAX) network for the company, supporting increase traffic at reduced cost
- Managed the application of new technologies to allow the company growth into new wireless areas
- Created and chaired "New Products and Services Committee"
- Developed and implemented a formal Disaster Recovery Program for the company
- Developed, implemented, and managed significant cost-savings programs for the region and country

	CELLULAR ONE	**ROCHELLE PARK, NJ**
Jan. 1990 to Aug. 1992	**Director, Engineering**	

Responsible for the design, development, integration, implementation, and optimization of all engineering aspects of the New York / New Jersey non-wireline cellular system. Directly manage the activities of the following departments:

- RF Optimization Engineering
- Cell Implementation Engineering
- Systems Engineering (Network, Switch, Traffic, Telco, etc..)
- Fraud Engineering

Major Accomplishments:

- Managed the growth of the Engineering Department and support staff from 3 people in 1989 to 35+ Engineers in four separate groups in 1992.
- Managed the growth of the System from 1 switch and 46 cell sites to 9 switches and 200+ cell sites.
- Developed and managed annual Expense and Capital budgets
- Developed and implemented extensive employee training programs
- Developed and implemented 'High-site' reduction projects
- Completed the New York System conversion from Motorola to Ericsson equipment (July 1991).
- Implementation of Digital Technology into the New York market (TDMA)
- IS-41 Rev. 0 Field Trials between Motorola and Ericsson systems.
- Developed and implemented extensive Fraud identification and elimination programs and projects.
- Provided Expert Witness testimony for numerous Zoning and Board of Adjustment Hearings throughout New York and New Jersey

1989 to 1990 — **Director, RF Engineering**

Responsible for all RF optimization and implementation aspects of the system. Directly manage the team of engineers responsible for the following:

- Optimize and maintain the integrity of the existing system while rapidly growing the system to meet subscriber growth.
- Develop and implement frequency assignments which allow maximum capacity and minimum interference.
- Develop short and long-term expansion plans which provide additional capacity and improved coverage. Evaluate and implement sectorization, cell splitting, and new site implementation to meet these plans.
- Select, design, and implement cell sites to meet the above listed criteria
- Extensively utilized LCC's ANET model and A.T.& T.'s PACE model for theoretical predictions of optimal cell site performance and interaction
- Responsible for all FCC license filings

METROMEDIA PAGING SERVICES — **SECAUCUS, NJ**

1988 to 1989 — **Director of Engineering**

Corporate staff position reporting to the vice-president:

- Provided consultation and analytical support to the operating branches nationwide related to all technical aspects of the business.
- Identified new technologies with the potential to benefit the company.
- Interfaced with the vendors to implement new technologies into products and equipment to be utilized by the operating branches.
- Coordinated the development and maintenance of uniform technical standards to ensure optimal technical performance.
- MFJ compliance liaison - Primary liaison between Metromedia Paging and Southwestern Bell (our parent company) regarding all technical issues related to ongoing MFJ compliance.

1987 to 1988 — **Engineering Manager**

- Responsible for all technical aspects of Metromedia Paging Services' largest system, the New York/New Jersey operation.
- Managed the Network Operations Center and the Field Service operations.
- Assisted in the development of the annual Capital and Expense budgets for the New York/New Jersey operating branch. Managed with full Profit and Loss responsibility (greater than $ 5 million annually).
- F.C.C. license responsibility.
- Site acquisitions, lease negotiations, and payments.
- Systems Engineering: Coverage and channel capacity planning; RF control link/repeater design; simulcast optimization procedures; paging formats and preamble management. Telco traffic engineering.

1986 to 1987 — **Systems Engineer**

Responsibilities:

- Evaluation and optimization of regional and national paging and conventional Mobile Telephone systems.
- Integration of common RF resources between dissimilar markets.
- Development and standardization of technical procedures and documentation.
- Alpha-Numeric 'front-end' processor development.
- Remote-site monitor and alarming project management.

WESTSIDE COMMUNICATION — **GAINESVILLE, FL**

1984 to 1986 — **Chief Engineer**

Managed all technical aspects of numerous regional and state-wide analog and digital paging systems. Maintained and operated eight conventional mobile telephone systems and two 5-channel Trunked SMR systems.
Designed and implemented the first true "Talk-Back" paging system on the East Coast utilizing satellite comparators/voting receivers, simulcast transmitters, and miniature UHF hand-held transceivers.

RADIO TELEPHONE COMPANY — **GAINESVILLE, FL**

1981 to 1984 — **Communications Engineer**

Responsible for all aspects of numerous paging and mobile telephone systems throughout the state of Florida.
Base station repair and paging terminal maintenance.

1979 to 1981 — **Technician**

Repair and maintenance of all types of pagers, radios, and base station equipment. The majority of this work was performed to fund college education.

PROFESSIONAL

Memberships and Affiliations:
I.E.E.E.
Radio Club of America
Chairman - Ericsson Users Group
Operational Measurements Subcommittee
CTIA - Inter-System Subcommittee

PERSONAL

Marital Status: Married
Two Children

Health: Excellent

Citizenship: United States

Other: Amateur Radio License
Private Pilot License

Personal and professional references available upon request.

Exhibit 1 - Carolina MTA and Knoxville MTA with State Boundaries